

**Notice of Allowability**

Application No.

10/506,596

Applicant(s)

AMATO, NICHOLAS

Examiner

Oanh Duong

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/21/2007.
2. ☒ The allowed claim(s) is/are 2, 5-8 and 10-12.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

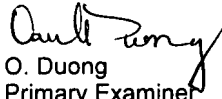
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
O. Duong  
Primary Examiner  
September 25, 2005

### INTERVIEW SUMMARY

1. Examiner suggested applicant to incorporate limitations of claim 4 and claim 13 into claim 2 in order to place the application in condition for allowance.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Shaalu Mehra (Registration No. 44,934) on September 25, 2007.

The claims of the invention are amended as follows:

Claim 2. (Currently Amended) A method to ~~for determine~~ determining one or more shortest paths through a network portion of a computer network from a source vertex to one or more destination vertices according to a link-state protocol, the method comprising:

processing a graph representation of the network portion, the graph representation including nodes and edges representing the vertices and connections therebetween, respectively

wherein

the processing includes operating on the graph representation according to a Dijkstra-like algorithm,

a subset of the Dijkstra-like algorithm processing includes candidate list processing[[.]] to maintain and operate upon a candidate list of nodes that have been visited in the Dijkstra-like algorithm processing, and

the candidate list processing is optimized relative to standard Dijkstra algorithm processing for the link-state protocol;

maintaining the candidate list of nodes as a Fibonacci heap of Fibonacci nodes, wherein the Fibonacci heap of Fibonacci nodes is stored in a generic format that is independent of the link-state protocol; and

operating on the Fibonacci heap of Fibonacci nodes to determine one or more shortest paths by processing the Fibonacci heap of Fibonacci nodes according to a particular algorithm that is independent of the link-state protocol, wherein the operating on the Fibonacci heap is performed by a plurality of ~~operators~~ operations, each of ~~which~~ the operations is capable of operating on a plurality of link state protocols,

wherein the plurality of operations includes an extract minimum operation for extracting a node from the candidate list of nodes that has a minimum cost according to the Dijkstra-like algorithm, and the extract minimum operation is operable for any of the plurality of link state protocols,

wherein the candidate list processing includes initially accepting a prior-created generic description of the Fibonacci heap of Fibonacci nodes that is independent of the link-state protocols, and

wherein the initially accepting the prior-created generic description for the Fibonacci heap of Fibonacci nodes includes accepting the prior-created generic description via a generalized application program interface, the generalized application programming interface including interfaces for the plurality of operations.

Claim 3. (Canceled)

Claim 4. (Canceled).

Claim 5. (Currently Amended) The method of claim [[13]] 2, wherein the step of processing the Fibonacci heap of Fibonacci nodes includes considering the Fibonacci nodes to determine which nodes to include in the one or more shortest paths.

Claim 6. (Currently Amended) The method of claim [[13]] 2, wherein the step of processing the Fibonacci heap of Fibonacci nodes includes a relax-key operation performed in an interactive, non-recursive manner.

Claim 7. (Current Amended) The method of claim [[13]] 2, including:

Initially allocating memory for a list of pointers to the Fibonacci nodes,

wherein the step of operating on the Fibonacci nodes includes maintaining the list of pointers to the Fibonacci nodes.

Claim 8. (Currently Amended) The method of claim [13] 2, wherein the step of operating on the Fibonacci nodes includes accessing a comparison function associated with the Fibonacci heap in a manner that is independent of the particular link-state protocol.

Claim 11. (Currently Amended) The method of claim 10, wherein the plurality of ~~operators~~ operations includes an initialization operation ~~operator~~, for initializing the

candidate list on the Fibonacci heap, wherein the initialization operation ~~operator~~ is operable on each of the plurality of link state protocols.

Claims 12. (Currently Amended) The method of claim 11, wherein the plurality of ~~operator~~ operations includes an insertion operation ~~operator~~, for inserting a new node in the candidate list, wherein the new node ~~may~~ corresponds to the any of the plurality of link state protocols.

Claim 13. (Canceled)

Claim 14. (Canceled)

***Allowable Subject Matter***

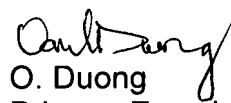
3. Claims 2, 5-8, 10-12 are allowable over the prior art of record.
4. This communication warrants no examiner's reason for allowance, as applicant's replies make evident the reasons for allowance, satisfying the "record as a whole" as required by rule 37 CFR 1.104(e). In this case, the substance of applicant's remarks in the Amendment filed on June 21, 2007 with respect to the amended claim limitations and further amended claim limitations in the Examiner's Amendment point out the reasons claims are patentable over the prior art of record. Thus, reason for allowance is in all probability evident from the record and no statement for examiner's reason for allowance is necessary (see M.P.E.P 1302.14).

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oanh Duong whose telephone number is (571) 272-3983. The examiner can normally be reached on Monday- Friday, 9:30PM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
O. Duong  
Primary Examiner  
September 25, 2007